L Number	Hits	Search Text	DB	Time stamp
1	366	369/77.1.ccls.	USPAT	2003/02/19 15:30
2	571	scan$4 near3 lever	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:33
3	1	369/77.1.ccls. and (scan$4 near3 lever)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:34
4	19187	scan$3 near7 (disc or disk or plate)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:35
5	29070	scan$4 near7 (disc or disk or plate)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:36
6	144	(scan$4 near3 lever) and (scan$4 near7 (disc or disk or plate))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:39
7	70174	(load$3 or unload$3) near5 mechanism	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:40
8	394	(scan$4 near3 lever) and "9"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:40
9	20	(scan$4 near3 lever) and ((load$3 or unload$3) near5 mechanism)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:47
10	164	369/77.1.ccls. and ((load$3 or unload$3) near5 mechanism)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:47
11	53161	lever and sensor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:48
12	38	(369/77.1.ccls. and ((load$3 or unload$3) near5 mechanism)) and (lever and sensor)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 16:06
13	30812	(various or potential) near5 resist$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:54
14	0	((369/77.1.ccls. and ((load$3 or unload$3) near5 mechanism)) and (lever and sensor)) and ((various or potential) near5 resist$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:53

15	95093	(vari$4 or potential) near5 resist$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:55
16	0	((369/77.1.ccls. and ((load$3 or unload$3) near5 mechanism)) and (lever and sensor)) and ((vari$4 or potential) near5 resist$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 15:55
17	5160	((vari$4 or potential) near5 resist$3) with (position or sensor)	USPAT	2003/02/19 15:56
18	484539	resistor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 16:06
19	0	((369/77.1.ccls. and ((load$3 or unload$3) near5 mechanism)) and (lever and sensor)) and resistor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/19 16:06
20	569	((load$3 or unload$3) near5 mechanism) and ((vari$4 or potential) near5 resist$3)	USPAT	2003/02/19 16:07
21	0	(scan$4 near3 lever) and (((load$3 or unload$3) near5 mechanism) and ((vari$4 or potential) near5 resist$3))	USPAT	2003/02/19 16:07
22	86	(lever and sensor) and (((load$3 or unload$3) near5 mechanism) and ((vari$4 or potential) near5 resist$3))	USPAT	2003/02/19 16:08

US-PAT-NO: 6288982

DOCUMENT-IDENTIFIER: US 6288982 B1

TITLE: Disk apparatus and method of locating/discriminating disks using the same

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Incidentally, the position sensor can detect continuously or intermittently the positions of the detection members. The **position sensor may be a linear sensor which detects the positions of the detection members by changes of an electrical resistance** value and changes of a magnetic detection value, or may have detection points (optical, magnetic, or mechanical detection points) which are aligned with fine pitches for detecting the positions of the detection members.

In the example shown in FIG. 1, a protrusion 15c protruding in the positive direction of the Y axis is formed at the corner of the sliding portion 15a and the detecting portion 15b of the detection member 15. A position sensor 18 (linear position sensor) for covering the overall sliding area of the protrusion 15c in the direction of the X axis is formed below the protrusion 15c, and a measuring pin 18a extending from the position sensor 18 is connected to the protrusion 15c. The position sensor 18 is the sensor for detecting the present position of the measuring pin 18a. For example, when the left end of the **position sensor 18 is taken as a reference point, a resistance** value between the reference point and the measuring pin 18a changes continuously due

to the position of the measuring pin 18a, and the amount of change is measured as a voltage drop. The measurement value from the position sensor 18 is transmitted to the control section Co provided in the disk apparatus B.

FIG. 2 is a graph showing the relationship between the **position of the measuring pin 18a of the position sensor 18 and the resistance value on the basis of the position**.

The measuring pin 18a in the position sensor 18 moves in the direction of the X axis in response to the movement of the detection member 15. When the detecting pin 15b1 is located at the position a, the measuring pin 18a is located at the position a1, closest to the negative side of the X axis, and the position a1 is shown as a reference point 0 in FIG. 2. When the detecting pin 15b1 moves to the positions a, b and c, the measuring pin 18a also moves in the positive direction of the X axis to the positions a1, b1, and c1, respectively.
In addition, reference numeral a2 in FIG. 2 shows a **resistance value of the position sensor** 18 when the measuring pin 18a is located at the position a1, and the resistance value at this time is a reference value (for example 0 (.OMEGA.)). The **resistance value of the position sensor** 18 increases as the measuring pin 18 moves in the positive direction of the X axis.

For example, in case the disk inserted into the inserting opening 11 is a disk of 12 cm in diameter, such as a CD or a DVD, the resistance value in FIG. 2 shows the largest value (peak value; c2 (.OMEGA.)) when the measuring pin 18a moves to the position c1 (the detecting pin 15b1 is located at the position c).
In case the inserted disk is a disk of 8 cm in diameter, such as an SD, the

resistance value shows the largest value (peak value; b2 (.OMEGA.)) when the
measuring pin 18a moves to the position b1 (the detecting pin 15b1 is located
at the position b). Since the peak values of the **resistance value of the
position sensor** 18 differ in accordance with the diameters of the disks, the
diameters of the disks can be discriminated by recognizing the peak values with
the control section Co; the setting of the rotation speed, etc. at the time of
driving the disk can be promptly and easily switched by the control section;
and an independent disk discriminating device is not required, so that a
reduction in cost can be achieved.

The control section Co monitors the detection output of the position sensor 18
as an output voltage, stores the peak value of the output voltage (the voltage
value corresponding to b2 or c2), and outputs a command for stopping the
transport rollers 12 at the time when the output voltage starts to drop from
the peak value. When an inertial force due to the rotation of the transport
rollers 12 is great, the transport rollers 12 rotate slightly even when the
driving motor Md of the transport rollers 12 is stopped, and the disk stops at
the position slightly moved in the positive direction of the Y axis from the
stop position of the drive motor Md. At this time, since the **resistance value
of the position sensor** becomes lower than the peak value (b2 or c2), a command
for reversing the rotation of the transport rollers 12 is output from the
control section Co to return the disk in the negative direction of the Y axis,
and the driving motor Md is stopped at the time when the detection output from
the position sensor 18 coincides with the peak value held by the control
section Co, whereby the center hole D0 of the disk can be located directly